QP Code : 77018

(2½ Hours) [Total Marks : 75

N.B. : (1) **All** questions are **compulsory.**
(2) **All** questions carry **equal marks.**
(3) Draw **neat, labelled diagrams** wherever **necessary.**

1. (a) Give one example of **any three** of the following : 3
   (i) Extracellular Messengers
   (ii) Effectors
   (iii) Cytoskeletal Proteins
   (iv) Microfilament depolymerizing proteins
   (v) Microtubule Motor Proteins
   (vi) Ligands of RTKs
   (b) Give an account of **any two** of the following : 12
   (i) Types of actin binding proteins
   (ii) Role of G protein in signal transduction
   (iii) Structural organisation of Intermediate filaments
   (iv) Significance of microtubules in mitosis

2. (a) Define **any three** of the following : 3
   (i) ECM
   (ii) Hypotonic solution
   (iii) CAD
   (iv) Uniporter
   (v) Connexon
   (vi) Procaspases
   (b) Attempt **any two** of the following : 12
   (i) Explain the significance of apoptosis in mammalian cells.
   (ii) Give an account of the structure and role of desmosomes.
   (iii) Describe the Na+ - K+ pump.
   (iv) Enlist the criteria for distinguishing between peripheral and integral membrane proteins.

3. (a) Explain **any one** of the following : 2
   (i) Co-culture
   (ii) Hot Air Oven

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(b) Name **any one** of the following : 1

(i) The equipment based on moist heat sterilization.

(ii) The term used for storage of tissues in liquid nitrogen.

(c) Discuss **any two** of the following : 12

(i) Design and facilities in animal tissue culture laboratory.

(ii) Applications of animal tissue culture.

(iii) Tissue culture vessels.

(iv) Laminar air flow- horizontal and vertical.

4. (a) Give significance of **any three** of the following : 3

(i) Trypsin

(ii) Eagle's MEM

(iii) Kanamycin

(iv) Mouse fibroblast Feeder layer

(v) Organ culture

(vi) Serum

(b) Answer **any two** of the following : 12

(i) Give an account of physicochemical conditions provided for animal tissues by ATC media.

(ii) Discuss advantages of serum in animal tissue culture.

(iii) Give the biological characteristics of EG and EC cell lines.

(iv) Give an account of Balanced salt solutions used in Animal tissue culture.

5. Write short notes on **any three** of the following : 15

(a) EC gradient

(b) Aquaporins

(c) Role of microfilament in non-muscle motility

(d) Calmodulin

(e) CO_2 incubator

(f) Therapeutic cloning
